Overview

In the Media industry there are business requirements for certain Media assets (Films and TV shows) to amortize Development or Acquisition Costs based on pre-defined Amortization tables (“Curves”).

Curve Examples

	Curve	Periods												
	Type	01	02	03	04	05	06	07	08	09	10	11	12	Total
1	30% then SL	10.00	10.00	10.00	7.78	7.78	7.78	7.78	7.78	7.78	7.78	7.78	7.78	100.00
2	40% then SL	13.33	13.33	13.33	6.67	6.67	6.67	6.67	6.67	6.67	6.67	6.67	6.67	100.00

In this table we can see two different Curves defined.

1: 30% Amortization for one quarter, then straight line for remaining 9 periods.

2: 40% Amortization for one quarter, then straight line for remaining 9 periods.

Amortization calculation using Tables or Curves

Amortization	
Costs $M	12
Start	Feb 2024
End	Jan 2025
Method	30% then SL

	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24
Amortization Expense M$		1.20	1.20	1.20	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Amortization Period		1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	

	Curve	Periods												
	Type	01	02	03	04	05	06	07	08	09	10	11	12	Total
1	30% then SL	10.00	10.00	10.00	7.78	7.78	7.78	7.78	7.78	7.78	7.78	7.78	7.78	100.00

In this example, we have 12 million of Costs that we want to amortize from Feb 23 through Jan 24, 12 periods in total using the “30% for a quarter, then Straight Line” Curve.

In Feb 23, the calculation must lookup period 1 from the Curve table, which is 10 % to calculate Amortization Expense.

In Jan 24, the calculation must lookup period 12 from the Curve table, which is 7.78 % to calculate Amortization Expense.

SAP Analytic Cloud approach

The normal approach to solving “date” based planning is to use a loop statement and execute calculations for each Asset, one at a time. This will result in long execution times when there are thousands of assets and amortization that needs to be calculated over many years.

This solution developed by SAP Services, can execute the calculations over all Assets at the **same time**. This results in large reduction in execution time of running this amortization calculation which in turn improves the User experience.

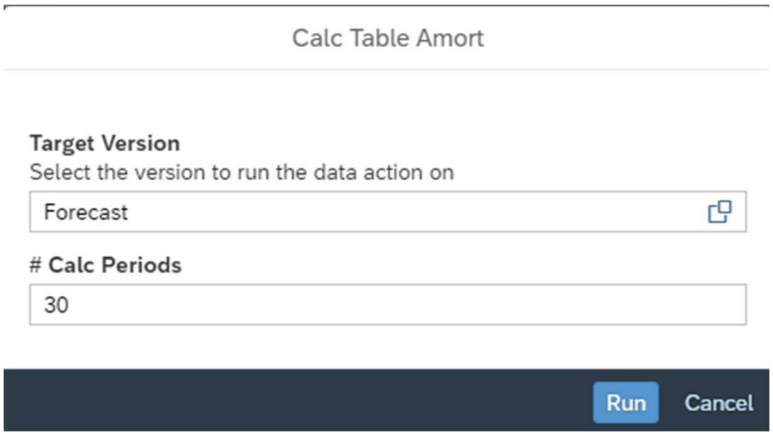
Operating Instructions

1. Running the calculations for sample data

Open story **Table Based Amortization**

Select page **01 Windows**

Press the button **Calc Table Amort**



Then press the **Run** button to execute the data action.

You will see this screen. The cells in yellow have been created by the data action.

	Account	Start [YY.MM]	End [YY.MM]	Net Balance	Gross Balance	Adjustments	Accum. Amort	PUSH #	REM #	LT #
Asset	*Amort Type*									
Asset A0		25.01	25.12	120,000	120,000	–	–	24	12	12
Asset A1	*A40SL*	25.01	25.12	120,000	120,000	–	–	24	12	12
Asset A2	*A40SL*	25.02	26.01	120,000	120,000	–	–	25	12	12
Asset A3	*A40SL*	–	–	–	–	–	–	–	–	–
Asset A4	*A40SL*	–	–	–	–	–	–	–	–	–
Asset A5	*A30SL*	25.01	25.12	120,000	120,000	–	–	24	12	12

Select page **02 Expense**

You will see the amortization expense created by the data action based on the Amort Type.

If Amort Type is blank (null) then Straight-Line amortization method is applied.

			Version	Forecast *												
			Data Source	Result												
			Date	202501	202502	202503	202504	202505	202506	202507	202508	202509	202510	202511	202512	202601
Company	Asset	*Amort Type*	Account													
US Electric	Asset A0		AMORT_EXP	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	0.00
	Asset A1	*A40SL*	AMORT_EXP	16,000.00	16,000.00	16,000.00	8,000.00	8,000.00	8,000.00	8,000.00	8,000.00	8,000.00	8,000.00	8,000.00	8,000.00	0.00
	Asset A2	*A40SL*	AMORT_EXP	0.00	16,000.00	16,000.00	16,000.00	8,000.00	8,000.00	8,000.00	8,000.00	8,000.00	8,000.00	8,000.00	8,000.00	8,000.00
	Asset A5	*A30SL*	AMORT_EXP	12,000.00	12,000.00	12,000.00	9,333.33	9,333.33	9,333.33	9,333.33	9,333.33	9,333.33	9,333.33	9,333.33	9,333.33	0.00

If you scroll to the right hand side of the table you will see the Total Expense for all periods for each asset.

Date	202511	202512	202601	202602	202603	202604	Totals
Account							
AMORT_EXP	10,000.00	10,000.00	0.00	0.00	0.00	0.00	**120,000.00**
AMORT_EXP	8,000.00	8,000.00	0.00	0.00	0.00	0.00	**120,000.00**
AMORT_EXP	8,000.00	8,000.00	8,000.00	0.00	0.00	0.00	**120,000.00**
AMORT_EXP	9,333.33	9,333.33	0.00	0.00	0.00	0.00	**120,000.00**

2. Planning for Assets that have already started to Amortize

Select page **03 Amort Tables**

You can see two entries for A30SL and Lifetime 12.

			Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
			Period	*01*	*02*	*03*	*04*	*05*	*06*	*07*	*08*	*09*	*10*	*11*	*12*
	Account	**Lifetime**	**Remaining**												
10	A30SL	Lifetime 12	Remaining 11	11.1111111	11.1111111	8.6419753	8.6419753	8.6419753	8.6419753	8.6419753	8.6419753	8.6419753	8.6419753	8.6419753	–
11			Remaining 12	10.0000000	10.0000000	10.0000000	7.7777778	7.7777778	7.7777778	7.7777778	7.7777778	7.7777778	7.7777778	7.7777778	7.7777778

Remaining 12: These are rates for an asset that will start to amortize in the future.

Remaining 11: These are the rates for an asset has started to amortize, in this case one month of amortization has happened, and there are eleven remaining.

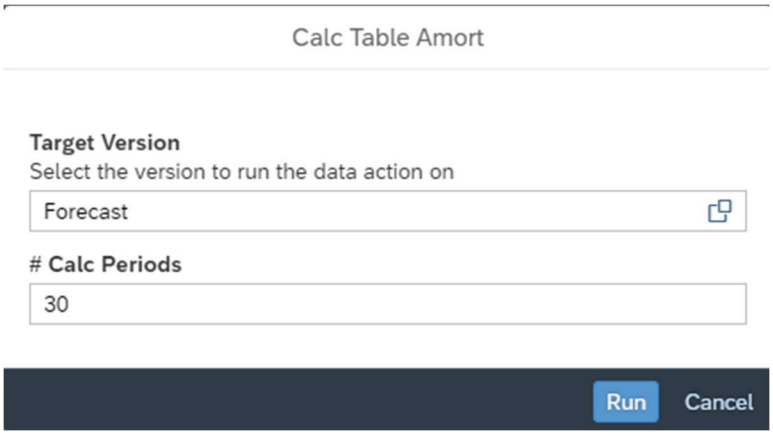
Select page **01 Windows**

For Asset A6 enter

Start: 23.10 | Enter one month before the current month…if current month is 23.11 >> Enter 23.10
End: 24.09 | Enter 12 months after Start
Gross Balance: 120,000
Accum Amort: -12,000

This asset started to amortize one month ago. If there is any amount in Accum Amort it means that this asset has already started to amortize, and the system should calculate the remaining periods only.

Press the button **Calc Table Amort**



Then press the **Run** button to execute the data action.

The cells in yellow have been created by the data action. If REM: Remaining is less than LT: Lifetime this is an asset that has started to amortize relative to the current month.

	Account	Start [YY.MM]	End [YY.MM]	Net Balance	Gross Balance	Adjustments	Accum. Amort	PUSH #	REM #	LT #
Asset	*Amort Type*									
Asset A0		25.01	25.12	120,000	120,000	–	–	24	12	12
Asset A1	*A40SL*	25.01	25.12	120,000	120,000	–	–	24	12	12
Asset A2	*A40SL*	25.02	26.01	120,000	120,000	–	–	25	12	12
Asset A3	*A40SL*	–	–	–	–	–	–	–	–	–
Asset A4	*A40SL*	–	–	–	–	–	–	–	–	–
Asset A5	*A30SL*	25.01	25.12	120,000	120,000	–	–	24	12	12
Asset A6	*A30SL*	23.09	24.08	108,000	120,000	–	-12,000	9	11	12

Select page **02 Expense**

You can see the expense calculated for Asset A6, check the Total column and you will see the correct total is 108,0000.

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			Data Source	Result										
			Date	202310	202311	202312	202401	202402	202403	202404	202405	202406	202407	202408
Company	**Asset**	*Amort Type*	**Account**											
US Electric	Asset A0		AMORT_EXP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Asset A1	*A40SL*	AMORT_EXP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Asset A2	*A40SL*	AMORT_EXP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Asset A5	*A30SL*	AMORT_EXP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Asset A6	*A30SL*	AMORT_EXP	12,000.00	12,000.00	9,333.33	9,333.33	9,333.33	9,333.33	9,333.33	9,333.33	9,333.33	9,333.33	9,333.33

3. Adding New Rates to the table

We are going to follow steps to add a new amortization rate A50SL
with 50% amortized in first 3 months and then straight line for remaining periods.

3. 1 Add new account into the Account dimension

Duplicate the same properties as the other accounts A30SL and A40SL.

	Member ID	Hierarchy	Formula	Account Type	Scale	Decimal Places
1	A30SL	CURVES		NFIN	None	7
2	A40SL	CURVES		NFIN	None	7
3	A50SL	CURVES		NFIN	None	7

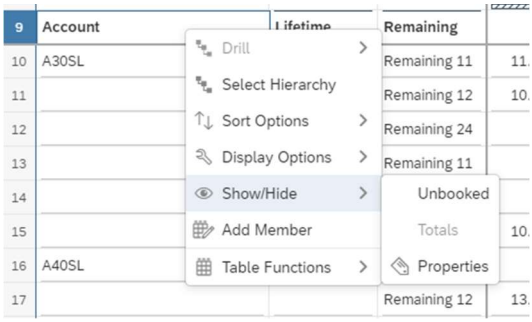
Make sure you Save the model.

3. 2 Adding amortization amounts to the new account

Select page 03 Amort Tables

Select cell A9 and “right mouse button”. A9 is the Account dimension header on rows.

Select Unbooked.



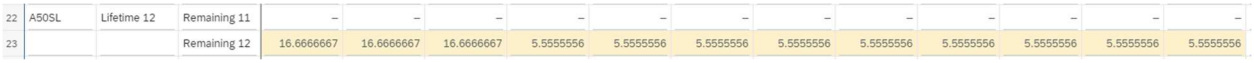
You will now see blank lines for the new account A50SL.

22	A50SL	Lifetime 12	Remaining 11	–	–	–
23			Remaining 12	–	–	–
24			Remaining 24	–	–	–
25		Lifetime 24	Remaining 11	–	–	–
26			Remaining 12	–	–	–
27			Remaining 24	–	–	–

You will now see blank lines for the new account A50SL. Copy and Paste these values into A50SL + Lifetime 12 + Remaining 12

16.6666667	Period 1 to 3
5.5555556	Period 4 to 12

Your screen should look like this.



22	A50SL	Lifetime 12	Remaining 11	–	–	–	–	–	–	–	–	–	–	–	–	–
23			Remaining 12	16.6666667	16.6666667	16.6666667	5.5555556	5.5555556	5.5555556	5.5555556	5.5555556	5.5555556	5.5555556	5.5555556	5.5555556	5.5555556

Press the Publish Data button and select Publish again.

3. 3 Configure an Asset to use the new rate

Open the ASSET dimension and make this change

	Member ID	Description	H_ASSET	Amort Type
1	A9	Asset A9	A	A50SL

Press the Save button

3. 4 Enter data against this updated Asset

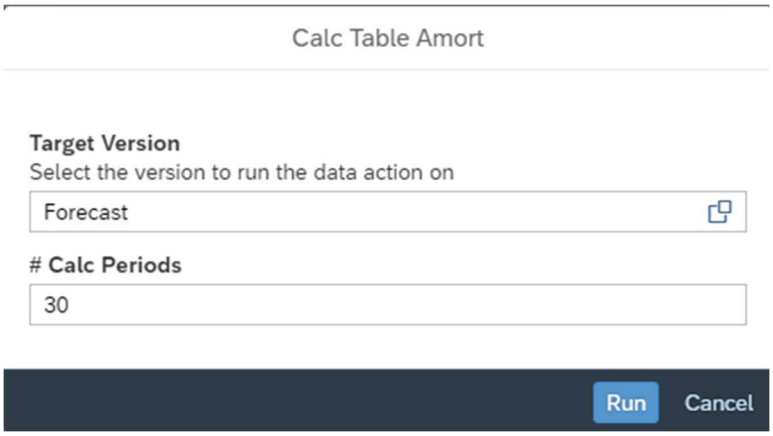
Select story **Table Based Amortization**

Select page **01 Windows**

For **Asset A9** enter

Start: 25.01
End: 25.12
Gross Balance: 120,000

Press the button **Calc Table Amort**



Then press the **Run** button to execute the data action.

Select page **02 Expense**

Check the calculated expenses for Asset A9.

4. Testing with large datasets

Select page **04 Test Data**

Press the button **Seed Test Data**

You will see that 50,000 Asset records were created.

Company	Account / Asset	Start [YY.MM]	End [YY.MM]	Gross Balance	Count
All Companies	A Group	1,200,500.00	1,256,000.00	12,000,000,000	50,000
US Electric	A Group	240,100.00	251,200.00	2,400,000,000	10,000
UK Electric	A Group	240,100.00	251,200.00	2,400,000,000	10,000
Canada Electric	A Group	240,100.00	251,200.00	2,400,000,000	10,000
Mexico Electric	A Group	240,100.00	251,200.00	2,400,000,000	10,000
Germany Electric	A Group	240,100.00	251,200.00	2,400,000,000	10,000

Start a stop watch

Press the button **Calc Table Amort**

Testing on internal SAP tenant, we see results around 40 seconds.

Select the Data Actions Monitor from the Main Menu >> Data Actions

You can see the performance of each step within the data action.

Steps

	Name	Database Rec...	Duration
	Preparing to execute	–	4 s
1	00 Clean Up Periods	0	0.4 s
2	00 Clean Up Global Peri...	0	0.3 s
3	01 Store Current Period	100K	0.7 s
4	02 Date Math	300K	2 s
5	03 Flip End and Carry Fo...	3.1M	3 s
6	04 Assign LIFETIME	1.5M	3 s
7	05 Assign REMAINING	1.5M	5 s
8	06 Calc Exp from First Pe...	1.2M	4 s
9	07 Calc Exp from First Pe...	120	0.8 s
10	08 Pad Zeros	1.6M	1 s
11	09 Copy Exp to Current ...	1.2M	5 s

Deep Dive of Calculation Approach

User Inputs

Data Action: CTA_END_SL

	Version	Forecast *								
	Account	AMORT_START	AMORT_END	NET_BAL	GROSS_BAL	ADJUST_BAL	AMORT_ACCUM	PUSH_FORWARD_PERIODS	REMAINING_PERIODS	LIFETIME_PERIODS
Asset	Amort Type									
Asset A1	A40SL	25.01	25.12	120,000	120,000	–	–	24	12	12

Data Action Step	Dimension Asset	Dimension LIFETIME	Dimension REMAINING	Dimension DATA SOURCE	Dimension Account	202301	202302	202303	202304	202305	202306	202307	202308	202309	202310	202311	202312
03 Flip End and Carry Forward	Asset A1	#	#	INPUT	ASSET_TOTAL	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
04 Assign LIFETIME	Asset A1	#	Lifetime 12	INPUT	ASSET_TOTAL	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
05 Assign REMAINING	Asset A1	Remaining 12	Lifetime 12	INPUT	ASSET_TOTAL	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
06 Calc Exp from First Period not SL	Asset A1	Remaining 12	Lifetime 12	INPUT	AMORT_EXP	16,000	16,000	16,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
	#	Remaining 12	Lifetime 12	RATES	A40SL	13.33333	13.33333	13.33333	6.666667	6.666667	6.666667	6.666667	6.666667	6.6666667	6.666667	6.666667	6.666667

Asset Total is copied to correct number of periods based on Total Duration (End - Start).
Dimension assignment is performed based on calculated values for REMAINING_PERIODS and LIFETIME_PERIODS.
This alligns the ASSET_TOTAL with the rate amounts for A40SL to make the calculation easy, no offset calculations are neeed.

Data Action Step	Dimension Asset	Dimension LIFETIME	Dimension REMAINING	Dimension DATA SOURCE	Dimension Account	202501	202502	202503	202504	202505	202506	202507	202508	202509	202510	202511	202512
09 Copy Exp to Real Periods	Asset A1	#	#	RESULT	AMORT_EXP	16,000	16,000	16,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000

Finally the Amortization Expenses are pushed forward into the correct periods based on PUSH_FORWARD_PERIODS = 24
Data stored in 202301 gets copied to 202501.